

The Relationship Between Responsible Drinking Policies and Football Game-Day Incidents at  
The Ohio State University: a Preliminary Study

Undergraduate Research Thesis

Presented in partial fulfillment of the requirements for graduation with honors research  
distinction in the undergraduate colleges of The Ohio State University

By Sunder Sai  
The Ohio State University, April 2018

Project Advisor: Professor Paul Bellair, Department of Sociology

## **Introduction**

This preliminary study aims to determine if there is a relationship between responsible drinking policies and football game day misconduct at The Ohio State University (OSU). Ohio Stadium, home to the OSU Buckeyes college football team, hosts 7 to 8 annual home football games each fall. In the past two seasons, incidents of ejections have declined fairly substantially. Perhaps coincidentally, but possibly not, the reduction coincides with a change in OSU stadium alcohol policies. It is reasoned that this change in policy reflects a shift in what can be referred to as “responsible drinking policies.” No previous known research seeks to understand this correlation or address factors contributing to this trend. Furthermore, a plausible explanation for this pattern is also lacking. It is hypothesized that these “responsible drinking policies,” which are reflected through stadium-wide alcohol sales and no-bag policy, contribute to this reduction of incidents particularly reduction in ejections.

## **Background**

In 2015, The Ohio Stadium began selling alcohol as a pilot program to guests with tickets in suite and club levels of the stadium. The Ohio Stadium extended their pilot program starting in 2016, selling alcohol stadium-wide to guests of age for the very first time. Guests are able to purchase a maximum of two alcoholic beverages per person at a time (OSU Athletics). It is reasoned that the stadium-wide alcohol sales could influence guests to drink more responsibly by giving them the opportunity to drink moderately inside the stadium. This may discourage the amount of alcohol consumed outside the stadium prior to the game.

Additionally, the Ohio Stadium began enforcing a new bag policy, which prohibits guests from bringing bags or purses of any size (OSU Athletics). This new no-bag policy limits guests from bringing in outside alcohol into the stadium. These stadium policies can be defined as

*responsible drinking policies* used to directly and indirectly prevent binge drinking behavior amongst guests.

## **Literature Review**

Previous literature has shown that crime, misconduct, and incidents tend to increase within and around stadiums during sporting events, in particular, alcohol-related misconducts. The following literature review takes a look at the existing body of research discussing these trends. Research regarding alcohol and violence will be first discussed and then alcohol in the context of sporting events and fan behavior will be analyzed.

### **The Relationship Between Alcohol and Violence**

The current research shows that alcohol has very clearly been associated with violence. According to Graham and Livingston 2011, alcohol related violence can cause death, injury, and associated health problems. Their analysis of research found associations between alcohol consumption and homicide rates and alcohol and self-inflicted violence or suicide. They determined that drinking levels of populations could predict violence-oriented deaths. This was true especially in cultures with intoxication inclined drinking patterns (Graham and Livingston 2011). Parker and Auerhahn 1998 also conducted a review of the literature regarding the relationship between alcohol and violence as well. In their theoretical analysis, they found substantial evidence linking alcohol use with violence of all kinds (Parker and Auerhahn 1998).

Researchers Rees and Schnepel 2008 studied the relationship between football games and crime by analyzing reports from police agencies that had jurisdiction over communities with Division 1-A college football teams. Their findings indicated that communities hosting games experienced increases in alcohol-related arrests, disorderly conduct arrests, assaults, and

vandalism on football game days (Rees and Schnepel 2008). The study was indicative of alcohol related aggressive fan-behavior and violence.

### **Alcohol, Sporting Events, and Fan Behavior**

In a 2015 New York Times article, Marc Tracy reported on West Virginia University's new alcohol sale program in Milan Puskar Stadium, home of the WVU Mountaineers. While many interviewed stated that they preferred to drink at tailgates in the parking lot as opposed to buying expensive beer inside the stadium, the WVU beer sale count and revenues show that fans continued purchase alcohol during games regardless of price. Tracy's coverage of WVU's alcohol sale program indicates that fans may be able to drink moderately throughout the day when alcohol is sold in-stadium. According to WVU campus police department, there were also sharp declines in incident reports and arrests during home football games from 2010 to 2014 – seasons in which alcohol was sold in the stadium (Tracy 2015).

Merlo et al. 2010 also studied alcohol-related offenses in connection with college football games as well. After analyzing a university town with an NCAA Division 1 football program, they found that football game days saw the highest number of arrests when compared to typical control days and holidays. The alcohol-related offenses also occurred closer to the football stadium than either control or holidays (Merlo et al. 2010).

Another study further evaluated the relationship between drinking behaviors and football game days. Glassman et al. 2007 randomly surveyed 762 football game day fans anonymously online. Their results showed that fans drank much more on game day than in other social settings such as parties. Those who did not drink were greater supporters for game day interventions, whereas those who drink heavily were least supportive. Overall, fans supported game day

responsible drinking interventions such as an increase law enforcement presence, alcohol free alternatives on game days, and designated areas for responsible tailgating (Glassman et al. 2007).

Intervention strategies can overall be seen to improve responsible alcohol consumption. Kingsland et al. 2015 studied alcohol management practices in football sports clubs primarily through randomized control trials and random multi-strategy interventions. They found that the majority of football clubs that went through intervention strategies later followed through by implementing responsible drinking management practices. The intervention strategies, which included increased law enforcement, training, financial support, and accreditation awards to football clubs, was considered highly useful in improving responsible drinking management (Kingsland et al. 2015).

Alcohol consumption and related fan-behavior may not be limited to just football games, but other sports as well. In similar studies, Neal et al 2005 analyzed drinking behavior during two Final Four Men's Basketball games at Syracuse University by surveying 206 undergraduate college students. Their results showed that consumption of alcohol on these two game days were higher than consumption on a given normal day. Those who were heavy drinkers were more likely to both drink and drink heavily on those game days than those who were not. Lack of impulse control was also related to an increased likelihood to drink on those two game days as well (Neal et al. 2005).

In summary, the current literature shows that crime, misconduct, and incidents tend to increase within and around stadiums during sporting events, in particular alcohol-related misconducts. Furthermore, fans tend to consume greater amounts of alcohol on college game days than on other days and other social settings. There is also an observed relationship between

alcohol and violence. Intervention strategies promoted responsible drinking management practices within clubs and bars.

## **Data and Methods**

Incident statistics from OSU's Department of Public Safety were examined for the 2012, 2013, 2014, 2015, 2016, and 2017 OSU home football game seasons. The following are categorized as a reported *game-day incident*: alcohol arrests inside, alcohol arrests outside, other types of arrests inside, other types of arrests outside, alcohol citations, and stadium ejections. These game-day incidents were analyzed and compared across the 6 seasons.

The following were observed as potential variables influencing game-day incidents: game time, stadium total attendance (attendance), OSU points scored, OSU possession time of ball (possession time), game duration, and game day temperature (temperature). The *game time*, *OSU points scored*, *possession time* and *game duration* were all recorded from ESPN Analytics and OSU Dept. of Athletics. Lastly, *temperatures* were gathered from the National Weather Service Forecast records.

## **Results**

From Graph 1 below, results indicate that game-day incidents have overall decreased since the implementation of the mentioned responsible drinking policies, reflected through stadium-wide alcohol sales and no-bag policy. Incidents from 2014 to 2016 show a well-established decreasing trend line. Incident trends recently increased for 2017, but incidents were still lower than in years prior to the responsible drinking policies. This recent increase may be due to a new alcohol sale restriction which limits 1 alcoholic beverage to students in the south stands.

This change may actually encourage students to seek alternative ways to consume and may contribute to the recent increase in incidents.

Alcohol arrests within the stadium have increased since 2012, as displayed by Graph 2. These incidents can be attributed to underage guests drinking, buying, or possessing alcohol, providing alcohol to underage guests, and using false identification to purchase alcohol. Graph 3 shows total game-day ejections by season, indicating decreasing trends in ejections since the implementation of the mentioned responsible drinking policies.

Game-day temperature, attendance, and points scored did not have a significant correlation with incident trends, as shown by Graphs 4-6. Graph 7 shows the average incidents broken by game-time on any given season from 2012-2017. Noon games had an average of 14 incidents per season. Afternoon games, starting at either 3:30 p.m. or 4:30 p.m., had an average of 18 incidents per season. Evening games, starting at 6:30 p.m. or later, had the highest incident rates with an average of 45 incidents per season.

To see if game-day incidents were solely dependent on evening game-time, the evening game-day incidents were removed from the data set. Graph 8 shows a comparison of “game-day incident trend line” to the “game-day incidents without night games.” The graph shows that incident trends may be still decreasing, independent of night games. This decrease in trends may be attributed to responsible drinking policies.

Table 1 contains descriptive statistics and Table 2 presents the OLS regression findings (controlling for clustering within season). As Table 1 displays, over the course of the 6 seasons there were an average of 9 ejections per season. The games lasted on average 3.41 hours, and OSU had the ball on average 30.82 minutes, scoring an average of 43 points per game. The stadium held on average 106,403 attendees for a given home game-day. The game-day

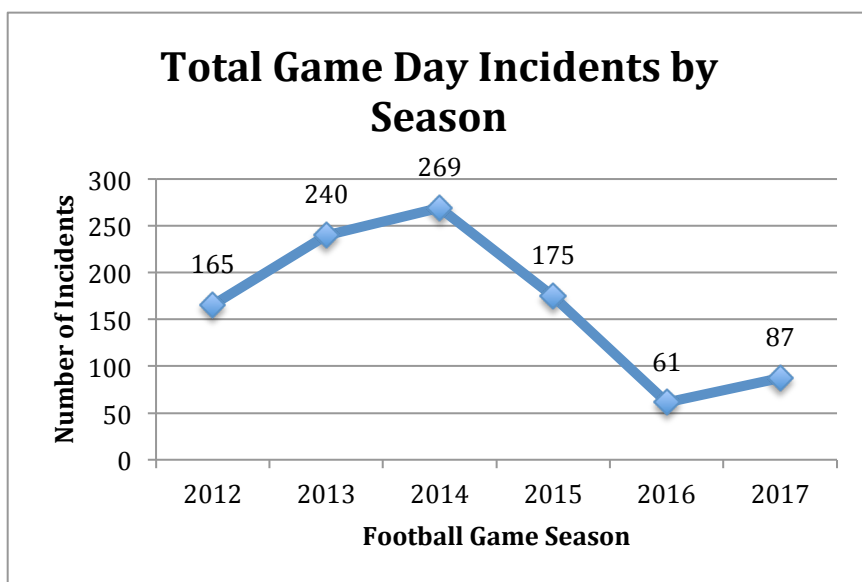
temperature was an average of 56.30 degrees Fahrenheit on game-days (Table 1: Descriptive Statistics).

For Table 2, the OLS regression results, *ejections* are focused on because that is the most definitive measure of misbehavior related to alcohol use. The other types of incidents may vary and could portray behaviors that may not be directly dependent on alcohol usage. The results show that the policy change is associated with on average 11 fewer ejections per season. The results also show that attendance is a contributing factor, indicating that as attendance increases ejections also increase. There are also more ejections as games progress through the season. This can be attributed to an increase in fan excitement as the season progresses (Table 2: OLS Regression for Ejections).

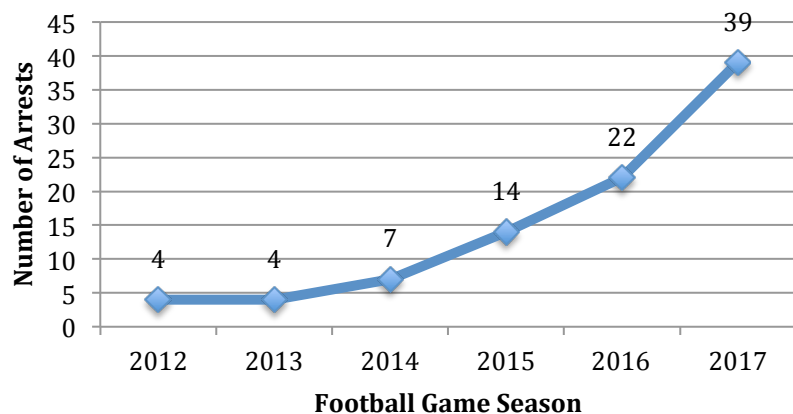


## Results: Visual Graphs

**Graph 1:** total game day incidents by season, showing an overall decrease in incidents in the past 3 seasons since policy changes were implemented.

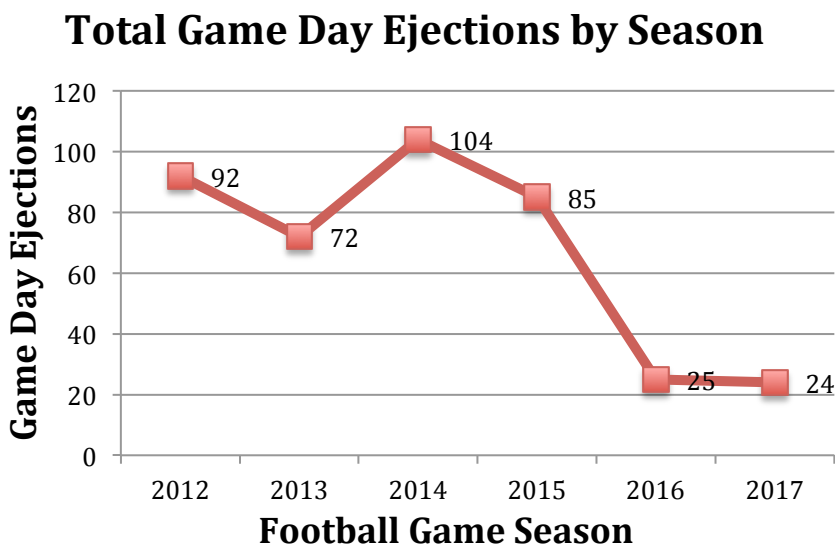


### Total In-Stadium Alcohol Arrests by Season

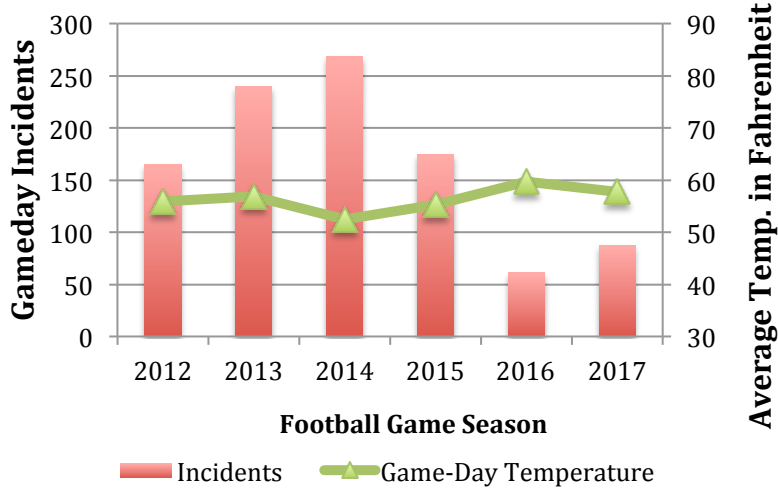


**Graph 2:** total in-stadium alcohol arrests by season, showing a steady increase for within stadium alcohol arrests.

**Graph 3:** total game day ejections by season, showing a decrease in ejections since policy changes were implemented.



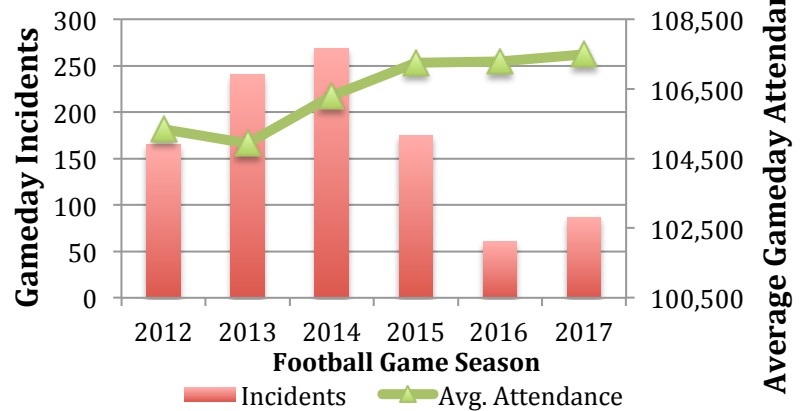
**Average Game Day Temperature vs. Game Day Incidents by Season**



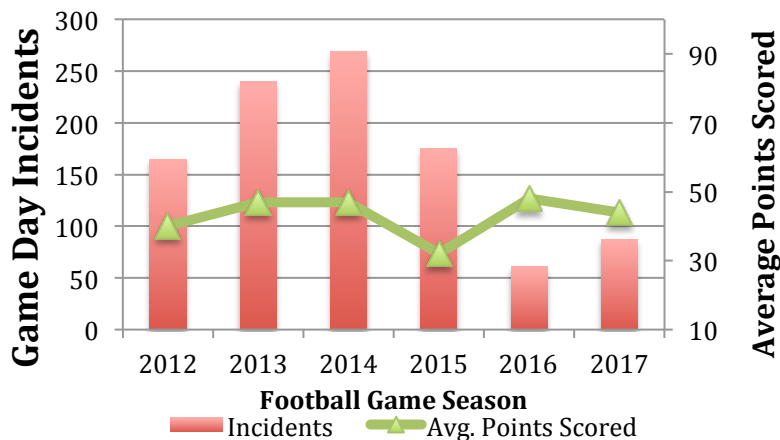
**Graph 4:** average game-day temperature versus game-day incidents by season. Visually showing no correlation between these variables.

**Graph 5:** average game-day attendance versus game-day incidents by season. Visually showing no correlation between these variables.

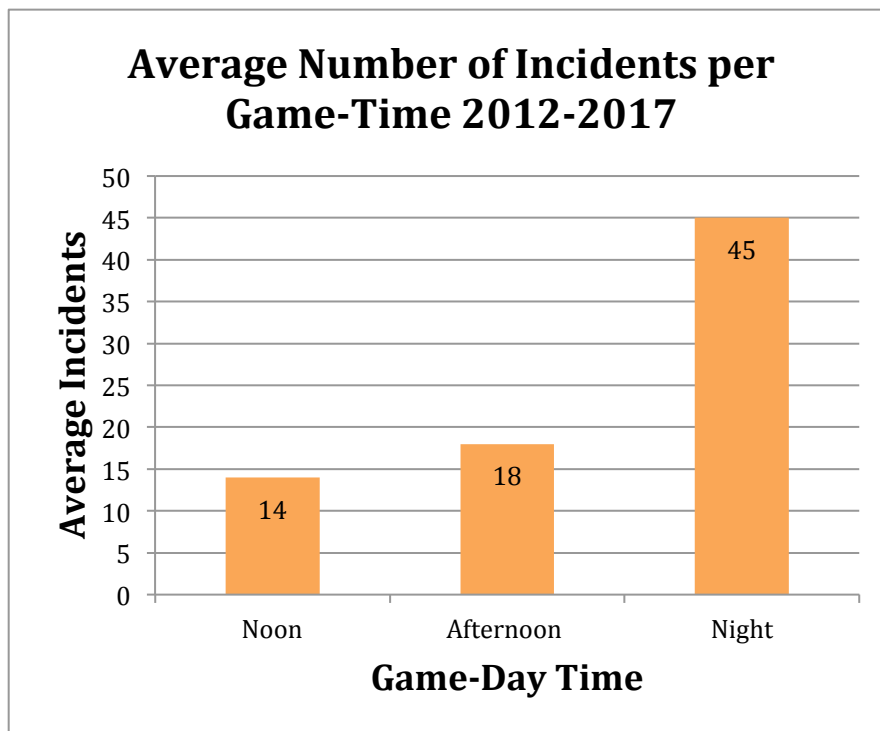
**Average Game Day Attendance vs. Gameday Incidents by Season**



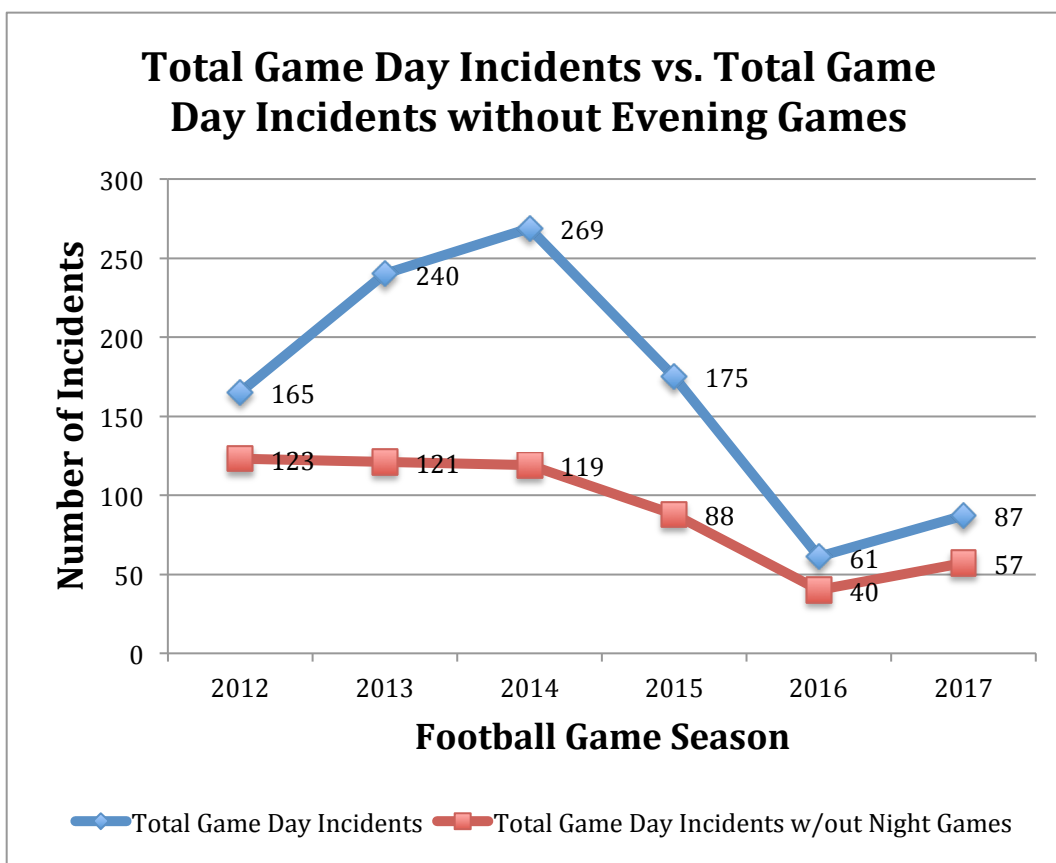
**Game Day Average Points Scored vs. Game Day Incidents by Season**



**Graph 6:** average OSU points scored versus game-day incidents by season. Visually showing no correlation between these variables.



**Graph 7:** average number of incidents per game-time from 2012 to 2017, indicating a high incident rate for night games.



**Graph 8:** graph showing the trend line when evening game-day incidents are removed from data set. Graph indicates that trends are still decreasing independent of night games.

## Results: Regression Analysis

<b>Table 1: Descriptive Statistics</b>				
<b>Variable</b>	<b>Mean</b>	<b>Std. Dev</b>	<b>Min</b>	<b>Max</b>
Ejections	9.348837	8.742027	0	31
In Stadium Sales	0.3255814	0.4741373	0	1
Game Duration	3.413721	0.2532834	2.98	4.3
Possession Time	30.82953	4.938253	21.83	41.92
OSU Points Scored	43.06977	15.45099	14	77
Attendance	106403.6	106403.6	101426	110045
Temperature	56.30233	56.30233	30	80

<b>Table 2: OLS Regression (Ejections)</b>						
<b>Variable</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>t</b>	<b>P &gt;  t </b>	<b>95% Conf. Interval</b>	
In Stadium Sales	-11.41056	3.756095	-3.04	0.029	-21.06591	-1.755208
Game Duration	3.062515	4.169319	0.073	0.496	-7.655062	13.78009
Possession Time	0.1893482	0.2053683	0.92	0.399	-0.3385677	0.7172641
Points	0.0355657	0.0601491	0.59	0.58	-0.1190525	0.1901839
Attendance	0.0025373	0.004194	6.05	0.002	0.0014593	0.0036153
Temperature	-0.0161351	0.0517863	-0.31	0.768	-0.1492559	0.1169857
Game	1.359612	0.4491092	3.03	0.029	0.2051399	2.514084
Season	-0.5629331	0.7389964	-0.76	0.481	-2.462584	1.336718

## Conclusion

This preliminary study aimed to determine if there is a relationship between responsible drinking policies and football game-day misconduct at OSU. In the past two seasons, incidents of ejections have reduced since OSU began implementing responsible drinking policies. No previous known research seeks to understand this correlation and a plausible explanation for this pattern is also lacking. It was reasoned that responsible drinking policies, which are reflected through stadium-wide alcohol sales and no-bag policy, may be associated with a reduction of game day incidents.

*Game-day incident* were defined as alcohol arrests inside, alcohol arrests outside, other types of arrests inside, other types of arrests outside, alcohol citations, and stadium ejections. This research ultimately provides initial findings showing an overall decrease in game-day incidents in the past 2 seasons, which may be due to responsible drinking policies mentioned above. Stadium-wide alcohol sales may give guests opportunities to drink more moderately inside the stadium. No-bag policy could also prevent guests from bringing alcohol into the stadium. Although incidents increased in 2017, the incident rate was still lower than in years prior to the implementation of responsible drinking policies.

Ejections are the primary focus of this preliminary study, as it is the most definitive measure of misbehavior related to alcohol use. All other types of incidents may vary and could portray behaviors that might not be directly dependent on alcohol usage. Analysis shows that the responsible drinking policies implemented are associated with on average fewer ejections per season. Additionally, attendance was seen to be a contributing factor that influences ejections.

Ultimately, causality cannot be fully established and more research will be conducted for future games evaluating trends.

Limitations notwithstanding, the results suggest that universities can consider changing their in-stadium drinking policies in tandem with other policies, such as no-bag policy and enforcement of drinking laws within and outside the stadium. This can contribute to a responsible drinking atmosphere by making responsible alcohol consumption available within the stadium, preventing outside alcohol from entering the stadium through no-bag policy, and reducing irresponsible drinking inside and outside the stadium through enforcement of drinking laws.

## Bibliography and Works Cited

*ESPN Game Information. Entertainment and Sports Programming Network, www.espn.com/.*

Accessed 25 Mar. 2017.

"Frequently Asked Questions about Enforcement of Underage Drinking Laws." *OSU Student Life Resources and Policies. The Ohio State University Office of Student Life*, Ohio State University, 2008, studentlife.osu.edu/resources/safety/faqs-on-drinking-laws/. Accessed 25 Mar. 2017.

Glassman, T., et al. "Alcohol-Related Fan Behavior on College Football Game Day." *American College Health*, Nov.-Dec. 2007.

Kalist, David, and Daniel Lee. "Does Crime Increase on Game Day?" *Journal of Sports Economics*, 23 Oct. 2014.

Kalist, David E., and Daniel Y. Lee. "The National Football League. Does Crime Increase on Game Day?" *Journal of Sports Economics*, 23 Oct. 2014.

Kingsland, et al. "Improving the Implementation of Responsible Alcohol Management Practices by Community Sporting Clubs: a Randomized Controlled Trial." *Drug and Alcohol Rev.*, 4 Mar. 2015.

Kingsland, Melanie, et al. "Alcohol Consumption and Sport: a Cross-Sectional Study of Alcohol Management Practices Associated with at-risk Alcohol Consumption at Community Football Clubs." *BMC Public Health*, 2013.

Lenk, et al. "Alcohol Policies and Practices among Four-year Colleges in the United States: Prevalence and Patterns." *Study of Alcohol and Drugs*, May 2012.

---. "Alcohol Control Policies and Practices at Professional Sports Stadiums." *Public Health Rep.*, Sept.-Oct. 2010.

- Menaker, Brian, and Beth Chaney. "College Football Game Day Stadium Incidents: Policy and Environmental Effects on Alcohol-Related Ejections and Crime." *Journal of Policy Research in Tourism, Leisure, and Events*, 8 Apr. 2014.
- Merlo, Lisa J., et al. "The Association between Alcohol Related Arrests and College Football Game Days." *Drug Alcohol Depend*, 1 Jan. 2010.
- Nash, Robert, and Kathleen Auerhahn. "Alcohol, Drugs, and Violence." *Annual Review of Sociology*, Aug.-Sept. 1998.
- Neal, et al. "It's all Fun and Games... Or Is It? Collegiate Sporting Events and Celebratory Drinking." *Study of Alcohol*.
- Observed Weather Reports: Monthly Weather Summary. National Weather Service Forecast Office*, [www.weather.gov/iln/](http://www.weather.gov/iln/). Accessed 25 Mar. 2017.
- Ohio State Athletics - Football. Ohio State Athletics*, Ohio State University, [OhioStateBuckeyes.com](http://OhioStateBuckeyes.com). Accessed 25 Mar. 2017.
- Rees, Daniel I., and Kevin T. Schnepel. "College Football Games and Crime." *Journal of Sports Economics*, 1 Feb. 2009.
- Tracy, Marc. "Beer Here! Beer Here?" *New York Times*, 8 Oct. 2015. *New York Times*, [www.nytimes.com/2015/10/09/sports/ncaafootball/beer-alcohol-college-football-west-virginia.html](http://www.nytimes.com/2015/10/09/sports/ncaafootball/beer-alcohol-college-football-west-virginia.html).